REMARKS

The present Amendment cancels claims 1, 2 and 8, amends claim 9, leaves claims 10-17 unchanged, and adds claims 18-28. Therefore, the present application has pending claims 9-28.

35 U.S.C. §103 Rejections

Claims 1, 2 and 8-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,779,031 to Picher-Dempsey ("Picher") in view of U.S. Patent No. 5,933,412 to Choudhury, et al. ("Choudhury"). As indicated above, claims 1, 2 and 8 were canceled. Therefore, this rejection with respect to claims 1, 2 and 8 is rendered moot. With respect to the rejection of the remaining claims 9 and 10, this rejection is traversed for the following reasons. Applicants submit that the features of the present invention, as now more clearly recited in claims 9 and 10 are not taught or suggested by Picher or Choudhury, whether taken individually or in combination with each other as suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Amendments were made to the claims to more clearly describe the features of the present invention. Specifically, the claims were amended to more clearly describe that the present invention is directed to a network system as recited, for example, in independent claim 9.

The present invention, as recited in claim 9, provides a network system including a plurality of network domains. The network domains are coupled by line

to each other, and each network domain includes a communication node, a network management system, a control server, and a plurality of end systems. In each of the network domains, the network management system manages a user-information database, a policy database and in-domain network component information, where the user-information database stores information of users. Also in each of the network domains, the control server includes a resource database, a resource reserving means, a domain border determining means, and an inter-organization arbitrating means. The resource reserving means, in each of the network domains, accepts a request for network resource, based on a request for setting a QoS-guaranteed communication path, issued within each of the network domains or from another of the network domains through the domain border determining means. The resource reserving means also obtains a network resource corresponding to the request for network resource within each of the network domains, based on the user-information database, the policy database, and the in-domain network component information from the network management system and network resource information provided in the resource database. The domain border determining means, in each of the network domains, issues the request for network resource to the inter-organization arbitrating means when the requested network resources is a network resource on the line between each of the network domains and the other of the network domains, or a network resource belonging to the other of the network domains. The inter-organization arbitration means, in each of the network domains, negotiates with another inter-organization arbitrating means provided in another

control server within the other of the network domains to obtain a network resource corresponding to the request for network resource. In the network system of the present invention, if the request for setting a QoS-guaranteed communication path indicates reservation of a network resource between the network domains, the network management system breaks the network resource request into a set of network resource elements corresponding to the respective communication nodes with reference to a path control table received from the communication node into a set of resource elements. In addition, if the request for setting a QoS-guaranteed communication path indicates reservation of a network resource between network domains, the network management system converts the request into a set of requests for reserving each network resource element, enters the reserving information of the corresponding network resource element for each converted reserving request, and determines if the network resource element can be reserved on the basis of the qualification information of a request source having issued the reserving request and network resource allocating information. The prior art does not disclose all these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either Picher or Choudhury, whether taken individually or in combination with each other.

Picher discloses a wide area network arrangement including a number of secure local networks and an Internet service provider (ISP) backbone having an

ISP quality of service (QoS) module and an event server. However, Picher does not disclose a network system including a plurality of network domains as recited, for example, in independent claim 9.

Picher discloses a network system with event logging features. Picher relates to network communication and, more particularly to gathering and identifying session startup/teardown information and network router state information that may be used for ISP billing purposes. The disclosed network system obtains user information and event information controlled by an ISP by using an event logger 232 and a database (DBASE) 240, as shown in Fig. 2. The network system of Picher includes a single network domain.

In contrast to Picher, the present invention includes a network system including a plurality of network domains. One feature of each of the network domains includes where an inter-organization arbitrating means negotiates with another inter-organization arbitrating means provided in another control server within another of the network domains to obtain a network resource corresponding to the request for a network resource. Picher does not disclose these features, and the Examiner provides no support for the assertion that Picher discloses the features of claim 9. Unlike the present invention, Picher discloses a single network domain. Therefore, Picher does not disclose negotiating with another inter-organization arbitrating means provided in another control server within another of the network domains, as in the present invention.

Therefore, Picher fails to teach or suggest "the inter-organization arbitrating means negotiates with another inter-organization arbitrating means provided in another control server within the another of the network domains to obtain a network resource corresponding to the request for network resource" as recited in claim 9.

The above noted deficiencies of Picher are not supplied by any of the other references, particularly Choudhury. Therefore, combining the teachings of Choudhury with Picher still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Choudhury teaches parallel connection control processes and switching networks. However, Choudhury does not teach or suggest a network system including a plurality of network domains as recited, for example, in independent claim 9.

Choudhury's method and apparatus relates to parallel connection control. More particularly, the method and apparatus relates to a concurrent asynchronous transfer mode ("ATM") connection setup arrangement reducing the need for virtual path processing. The invention provides an alternative switching connection setup to achieve bandwidth savings or lower cost networks with acceptable setup delay. Segments of the connection are set up by executing operations in parallel. The algorithm and network are also extended to address complex control connection tasks, such as the complex control connection tasks, such as the complex bearer control tasks of third-party connection control, unidirectional multicast connection setup, and multiparty-to-multiparty connection control.

The present invention, as recited in claim 9, includes a network system including a plurality of network domains. One feature of each of the network domains includes where an inter-organization arbitrating means negotiates with another inter-organization arbitrating means provided in another control server within another of the network domains to obtain a network resource corresponding to the request for a network resource. Choudhury does not disclose these features, and the Examiner provides no support for the assertion that Choudhury discloses the features of claim 9. As shown in Fig. 2 and as described in column 6, lines 4-20, Choudhury discloses a network 100 subdivided into multiple domains. Each domain includes a set of connection servers, as set of switches and switch resource servers, and a set of end hosts A, B and C, D. Each connection server in a domain is logically connected to all the switches in the domain and to some subset of end hosts which are physically connected to this set of switches. However, Choudhury does not disclose negotiating with another inter-organization arbitrating means provided in another control server within another of the network domains, as in the present invention.

Therefore, Choudhury fails to teach or suggest "the inter-organization arbitrating means negotiates with another inter-organization arbitrating means provided in another control server within the another of the network domains to obtain a network resource corresponding to the request for network resource" as recited in claim 9.

Both Choudhury and Picher suffer from the same deficiencies relative to the features of the present invention as recited in the claims. Therefore, combining the teachings of Picher and Choudhury in the manner suggested by the Examiner does not render obvious the features of the present invention as now more clearly recited in claims 9-17. Accordingly, reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of claims 9-17 are respectfully requested.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references used in the rejection of claims 9-17.

New Claims 18-25

New claims 18-25 were added to more clearly describe the features of the present invention. Specifically, the claims were added to more clearly describe that the present invention is directed to a network system including a plurality of network domains as recited, for example, in independent claim 18.

The present invention as recited in claim 18 provides a network system including a plurality of network domains coupled to each other. The network domains each include a communication node, a control server, an end system, and a plurality of end systems. In each of the network domains, the control server exchanges, based on a setting request of the QoS-guaranteed communication path issued from the end system within another of the network domains, a list of border resources among the network domains with the control server within another of the network domains to negotiate for setting a communication path. The control server

also sets a QoS-guaranteed communication path among the network domains. The prior art does not disclose all these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. More specifically, the features are not taught or suggested by either Picher or Choudhury, whether taken individually or in combination with each other.

As previously discussed, Picher discloses a wide area network arrangement including a number of secure local networks and an Internet service provider (ISP) backbone having an ISP quality of service (QoS) module and an event server. However, Picher does not disclose a network system including a plurality of network domains as recited, for example, in independent claim 18.

In contrast to Picher, the present invention as recited in claim 18 includes a network system including a plurality of network domains. One feature of each of the network domains includes where the control server exchanges, based on a setting request of the QoS-guaranteed communication path issued from the end system within another of the network domains, a list of border resources among the network domains with the control server within the another of the network domains to negotiate for setting a communication path. The control server also sets a QoS-guaranteed communication path among the network domains. Picher does not disclose these features. Unlike the present invention, Picher discloses a single network domain. Therefore, Picher does not disclose negotiating for setting a

communication path, and setting a QoS-guaranteed communication path among the network domains, as in the present invention.

Therefore, Picher fails to teach or suggest "in each of the network domains, the control server exchanges, based on a setting request of the QoS-guaranteed communication path issued from the end system within another of the network domains, a list of border resources among the network domains with the control server within the another of the network domains to negotiate for setting a communication path, and sets a QoS-guaranteed communication path among the network domains" as recited in claim 18.

The above noted deficiencies of Picher are not supplied by any of the other references of record, particularly Choudhury. Therefore, combining the teachings of Choudhury with Picher still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Choudhury discloses parallel connection control processes and switching networks. However, Choudhury does not teach or suggest a network system including a plurality of network domains as recited, for example, in independent claim 18.

The present invention, as recited in claim 18, includes a network system including a plurality of network domains. One feature of each of the network domains includes where the control server exchanges, based on a setting request of the QoS-guaranteed communication path issued from the end system within another of the network domains, a list of border resources among the network domains with

the control server within the another of the network domains to negotiate for setting a communication path. The control server also sets a QoS-guaranteed communication path among the network domains. Choudhury does not disclose all these features. As shown in Fig. 2 and as described in column 6, lines 4-20, Choudhury discloses a network 100 subdivided into multiple domains. Each domain includes a set of connection servers, as set of switches and switch resource servers, and a set of end hosts A, B and C, D. Each connection server in a domain is logically connected to all the switches in the domain and to some subset of end hosts which are physically connected to this set of switches. However, Choudhury does not disclose exchanging a list of border resources among the network domains to negotiate the setting of a communication path and the setting of a QoS-guaranteed communication path among the network domains, as in the present invention.

Therefore, Choudhury fails to teach or suggest "in each of the network domains, the control server exchanges, based on a setting request of the QoS-guaranteed communication path issued from the end system within another of the network domains, a list of border resources among the network domains with the control server within the another of the network domains to negotiate for setting a communication path, and sets a QoS-guaranteed communication path among the network domains" as recited in claim 18.

Picher and Choudhury suffer common deficiencies relative to the features of the present invention as recited in the claims. Therefore, combining the teachings of

Picher and Choudhury would not render obvious the features of the present invention as now more clearly recited in the claims 18-25.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to Picher and Choudhury.

New Claims 26-28

The present invention, as recited in claim 26, provides a network system including a plurality of network domains coupled by lines to one another. Each of the network domains includes a communication node, a control server, an end system, and a plurality of end systems. In each of the network domains, the control server sets, based on a setting request of a QoS-guaranteed communication path issued from the end system within each of the network domains to the end system within another of the network domains, a QoS-guaranteed communication path among the network domains with the control server within the other of the network domains. The control server also sets a communication path within each of the network domains based on the setting of the QoS-guaranteed communication path. The prior art does not disclose all these features.

As previously discussed, Picher discloses a wide area network arrangement including a number of secure local networks and an Internet service provider (ISP) backbone having an ISP quality of service (QoS) module and an event server. However, Picher does not disclose a network system including a plurality of network domains as recited, for example, in independent claim 26.

In contrast to Picher, the present invention as recited in claim 26 includes a network system including a plurality of network domains. One feature of each of the network domains includes where the control server sets, based on a setting request of a QoS-guaranteed communication path issued from the end system within each of the network domains to the end system within another of the network domains, a QoS-guaranteed communication path among the network domains with the control server within the other of the network domains. The control server also sets a communication path within each of the network domains based on the setting of the QoS-guaranteed communication path. Picher does not disclose these features. Unlike the present invention, Picher discloses a single network domain. Therefore, Picher does not disclose setting a communication path within each of the network domains, based on the setting of the QoS-guaranteed communication path, as in the present invention.

Therefore, Picher fails to teach and suggest "in each of the network domains, the control server sets, based on a setting request of a QoS-guaranteed communication path issued from the end system within the each one of the network domains to the end system within another of the network domains, a QoS-guaranteed communication path among the network domains with the control server within the another of the network domains, and sets a communication path within the each one of the network domains based on the setting of the QoS-guaranteed communication path" as recited in claim 26.

The above noted deficiencies of Picher are not supplied by any of the other references of record, particularly Choudhury. Therefore, combining the teachings of Choudhury with Picher still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Choudhury discloses parallel connection control processes and switching networks. However, Choudhury does not teach or suggest a network system including a plurality of network domains as recited, for example, in independent claim 26. One feature of each of the network domains includes where the control server sets, based on a setting request of a QoS-guaranteed communication path issued from the end system within each of the network domains to the end system within another of the network domains, a QoS-guaranteed communication path among the network domains with the control server within the other of the network domains. The control server also sets a communication path within each of the network domains based on the setting of the QoS-guaranteed communication path. Choudhury does not disclose all these features. As shown in Fig. 3, Choudhury discloses where a communication path within a domain that belongs to the end hosts A is set, and then the connection server CS11 within the domain 1 sends a setup segment to the connection server CS21 within the domain 2. That is, the communication path within the domain is set irrespective of the setting of a communication path among the network domains. Therefore, Choudhury does not teach or suggest setting a communication path, based on a setting request of a QoS-guaranteed communication path issued from the end system within each of

the network domains to the ends system within another of the network domains, in the manner claimed.

Therefore, Choudhury fails to teach and suggest "in each of the network domains, the control server sets, based on a setting request of a QoS-guaranteed communication path issued from the end system within the each one of the network domains to the end system within another of the network domains, a QoS-guaranteed communication path among the network domains with the control server within the another of the network domains, and sets a communication path within the each one of the network domains based on the setting of the QoS-guaranteed communication path" as recited in claim 26.

Picher and Choudhury suffer common deficiencies relative to the features of the present invention as recited in the claims. Therefore, combining the teachings of Picher and Choudhury would not render obvious the features of the present invention as now more clearly recited in the claims 26-28.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to Picher and Choudhury.

In view of the foregoing amendments and remarks, Applicants submit that claims 9-28 are in condition for allowance. Accordingly, early allowance of such claims is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of

this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Mattingly, Stanger, Malur & Brundidge, P.C., Deposit Account No. 50-1417 (referencing attorney docket no. 500.40548X00).

Respectfully submitted,

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